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IN THE CLAIMS

Please amend claims 2-6, 8, 10-14, 16, 18, 23 and 24 as follows:

1. (PREVIOUSLY PRESENTED) A method of equalizing digital data signals, comprising the steps of:

demodulating and decoding an input signal having input data to produce a data output;

remodulating the data output to produce a pseudo-training sequence including an idealized input signal;

generating equalizer parameters from the pseudo-training sequence; and

equalizing the input signal according to the equalizer parameters.

2. (CURRENTLY AMENDED) The method of claim 1, wherein the step of generating equalizer parameters from the ~~remodulated data output~~ pseudo-training sequence comprises the steps of:

buffering the input signal; and

comparing the buffered input signal to the pseudo-training sequence to produce the equalizer parameters.

3. (CURRENTLY AMENDED) The method of claim 2, wherein the step of demodulating and decoding an input signal having input data to produce a data output comprises the steps of:

recovering the carrier and timing of the input signal to produce a carrier and timing recovered signal;

demodulating the carrier and timing recovered signal to produce a demodulated signal; and

decoding the demodulated signal to produce ~~a received data signal~~ the data output.

4. (CURRENTLY AMENDED) The method of claim 3, wherein the step of remodulating the data output to produce a pseudo-training sequence comprises the steps of:

re-encoding the ~~received data signal~~ data output to produce a re-encoded signal; and

remodulating the re-encoded signal to produce the pseudo-training sequence.

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5. (CURRENTLY AMENDED) The method of claim 4, wherein:

the step of decoding the demodulated signal to produce a ~~received data signal~~ the data output comprises the steps of:

inner decoding the demodulated signal;

detecting synchronization bits in the inner decoded demodulated signal; and

outer decoding the demodulated signal using the synchronization bits;

the step of re-encoding the ~~received data signal~~ data output to produce a re-encoded signal comprises the steps of:

outer encoding the ~~received data signal~~ data output to produce an outer encoded signal; and

placing synchronization bits in the outer encoded signal; and

inner encoding the outer encoded signal.

6. (CURRENTLY AMENDED) The method of claim 3, wherein:

the step of decoding the demodulated signal to produce ~~a received data signal~~ the data output comprises the steps of:

inner decoding the demodulated signal;

detecting synchronization bits in the inner decoded demodulated signal; and

outer decoding the demodulated signal using the synchronization bits to generate the data output;

the step of remodulating the data output to produce a pseudo-training sequence comprises the steps of:

inner encoding the inner decoded demodulated signal to produce a re-encoded signal; and

remodulating the re-encoded signal.

7. (ORIGINAL) The method of claim 1, wherein the input signal is equalized before being demodulated and decoded.

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8. (CURRENTLY AMENDED) The method of claim 7, wherein the step of generating equalizer parameters from the ~~remodulated data output~~ pseudo-training sequence comprises the steps of:

buffering the equalized input signal; and

comparing the buffered equalized input signal to the ~~remodulated data output~~ pseudo-training sequence to produce the equalizer parameters.

9. (PREVIOUSLY PRESENTED) An apparatus for equalizing digital data signals, comprising:

means for demodulating and decoding an input signal having input data to produce a data output;

means for remodulating the data output to produce a pseudo-training sequence including an idealized input signal;

means for generating equalizer parameters from the pseudo-training sequence; and

means for equalizing the input signal according to the equalizer parameters.

10. (CURRENTLY AMENDED) The apparatus of claim 9, wherein the means for generating equalizer parameters from the ~~remodulated data output~~ pseudo-training sequence comprises:

means for buffering the input signal; and

means for comparing the buffered input signal to the pseudo-training sequence to produce the equalizer parameters.

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11. (CURRENTLY AMENDED) The apparatus of claim 10, wherein the means for demodulating and decoding an input signal having input data to produce a data output comprises:

means for recovering the carrier and timing of the input signal to produce a carrier and timing recovered signal;

means for demodulating the carrier and timing recovered signal to produce a demodulated signal; and

means for decoding the demodulated signal to produce ~~a received data signal~~ the data output.

12. (CURRENTLY AMENDED) The apparatus of claim 11, wherein the means for remodulating the data output to produce a pseudo-training sequence comprises:

means for re-encoding the ~~received data signal~~ data output to produce a re-encoded signal; and

means for remodulating the re-encoded signal to produce the pseudo-training sequence.

13. (CURRENTLY AMENDED) The apparatus of claim 12, wherein:

the means for decoding the demodulated signal to produce ~~a received data signal~~ the data output comprises:

means for inner decoding the demodulated signal;

means for detecting synchronization bits in the inner decoded demodulated signal; and

means for outer decoding the demodulated signal using the synchronization bits;

the means for re-encoding the ~~received data signal~~ data output to produce a re-encoded signal comprises:

means for outer encoding the ~~received data signal~~ data output to produce an outer encoded signal;

means for placing synchronization bits in the outer encoded signal; and

means for inner encoding the outer encoded signal.

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14. (CURRENTLY AMENDED) The apparatus of claim 11, wherein:

the means for decoding the demodulated signal to produce ~~a received data~~ the data output signal comprises:

means for inner decoding the demodulated signal;

means for detecting synchronization bits in the inner decoded demodulated signal; and

means for outer decoding the demodulated signal using the synchronization bits to generate the data output;

the means for remodulating the data output to produce a pseudo-training sequence comprises:

means for inner encoding the inner decoded demodulated signal to produce a re-encoded signal; and

means for remodulating the re-encoded signal.

15. (ORIGINAL) The apparatus of claim 9, wherein the input signal is equalized before being demodulated and decoded.

16. (CURRENTLY AMENDED) The apparatus of claim 15, wherein the means for generating equalizer parameters from the ~~remodulated data output~~ pseudo-training sequence comprises:

means for buffering the equalized input signal; and

means for comparing the buffered equalized input signal to the ~~remodulated data output~~ pseudo-training sequence to produce the equalizer parameters.

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17. (PREVIOUSLY PRESENTED) An apparatus for equalizing digital data signals, comprising:

a demodulator for demodulating an input signal to produce a data output;

a modulator, communicatively coupled to the demodulator, for remodulating the data output to produce a pseudo-training sequence including an idealized input signal; and

a parameter generation module, communicatively coupled to the modulator for generating equalizer parameters from the pseudo-training sequence; and

an equalizer, communicatively coupled to the parameter generation module, for equalizing the input signal according to the equalizer parameters.

18. (CURRENTLY AMENDED) The apparatus of claim 17, wherein the input signal is coded, and the apparatus further comprises:

a decoder, coupled between the demodulator and the modulator, for decoding the demodulated input signal to produce the data output; and

a coder, coupled between the modulator and the ~~processor~~ decoder, for encoding the remodulated data output to produce the pseudo-training sequence.

19. (PREVIOUSLY PRESENTED) The apparatus of claim 17, wherein the equalizer is communicatively coupled to the input signal and the demodulator, and wherein the apparatus further comprises:

a buffer, coupled between the input signal and the parameter generation module, for buffering the input signal.

20. (ORIGINAL) The apparatus of claim 19, wherein the parameter generation module compares the buffered input signal to the pseudo-training sequence to produce the equalizer parameters.

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21. (PREVIOUSLY PRESENTED) The apparatus of claim 17, wherein the equalizer is communicatively coupled to the input signal and the apparatus further comprises:

a buffer, communicatively coupled between the equalizer and the parameter generation module, for buffering the equalized input signal.

22. (PREVIOUSLY PRESENTED) The apparatus of claim 21, wherein the parameter generation module compares the buffered input signal to the pseudo-training sequence to produce the equalizer parameters.

23. (CURRENTLY AMENDED) The apparatus of claim 17, further comprising:

a timing recovery and carrier recovery module communicatively coupled between the input signal and the demodulator;

an inner decoder communicatively coupled to the demodulator;

a synchronization bit detector, communicatively coupled to the inner decoder;

an outer decoder, communicatively coupled to the ~~outer decoder~~ synchronization bit detector, the outer decoder producing a received data output based on the input signal;

an outer encoder, communicatively coupled to the outer decoder, the outer encoder producing an outer encoded signal;

a synchronization module, communicatively coupled to the outer encoder, the synchronization module for placing synchronization bits in the outer encoded signal;

an inner ~~decoder~~ encoder, communicatively coupled ~~to~~ between the synchronization module~~; and~~

~~an inner decoder communicatively coupled between the inner encoder~~ and the modulator.

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24. (CURRENTLY AMENDED) The apparatus of claim 17, further comprising:

a timing recovery and carrier recovery module communicatively coupled between the input signal and the demodulator;

an inner decoder communicatively coupled to the demodulator;

a synchronization bit detector, communicatively coupled to the decoder;

an outer decoder, communicatively coupled to the ~~outer decoder~~ synchronization bit detector, the outer decoder producing a received data output based on the input signal; and

an inner ~~decoder~~ encoder communicatively coupled between the inner decoder and the modulator.

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